



Aerocapture entering Mars orbit. Aerocapture is one of six in-space propulsion technologies being investigated by Marshall's In-Space Propulsion Technology Office.

Marshall advances in-space propulsion work

By Sheri Bechtel

What if spacecraft could travel through space and return home to Earth in half the time it takes conventional chemical systems?

The In-Space Propulsion Technology Office at the Marshall Center is developing alternative propulsion technologies that one day could carry scientific missions to any point in the Solar System -- faster than ever before and with greater return on investment.

"We are leading the way to give NASA's scientists a new way to travel throughout the Solar System," says Les Johnson, manager of the In-Space Office. "The new transportation technologies we're developing could hold the key to future, more ambitious robotic exploration -- to the Moon, Mars and beyond."

See Aerocapture on page 2

Moving the Vision toward reality

By NASA Administrator Sean O'Keefe

One year after President Bush visited NASA Headquarters on January 14, 2004 and proposed with the Vision for Space Exploration bold new goals for our nation's space program, I'm pleased to report that our journey to the cosmos is well underway. Indeed, two centuries after the Lewis and Clark Expedition, the men and women of NASA are the true "Corps of Discovery" of our time. The entire NASA Family should take great pride in our involvement in an epic quest that will have profound implications for humanity.

As we are engaged in a marathon activity, not a sprint, our long-term exploration objectives are still far beyond the horizon. On the other hand, we've made so much progress in one year of focused effort that the starting

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Photo by Emmett Given/ Marshall Center

A visit from NASA's manager of Homeland Security

Scott Spearing, foreground, and Dr. Douglas Prasher discuss Lab-On-a-Chip Application Development technologies with Kathryn Havens, NASA manager of Homeland Security. She was at the Marshall Center Jan. 12 and 13 to get a first-hand look at technologies under development at Marshall that may be applicable to needs of the Department of Homeland Security. She was also interested in learning about capabilities Marshall has that may assist the federal agency.

12 selected for NASA programs

Marshall team members have been selected to participate in the competitive NASA Leadership Development Program and the NASA Fellowship Program for 2005-2006.

NASA centers nominate individuals, but the Executive Development Education Panel, comprised of members from across NASA, makes final selections based on applications and interviews.

Five from the Marshall Center will participate in the NASA Leadership Development Program. The program is designed to strengthen the participant's ability to understand the role NASA plays in supporting national goals. Participants will work at NASA Headquarters or another center for one year. Those selected are:

- Chryssa Kouveliotou, Space Science Branch (XD12)
- William Lapenta, Earth and Planetary Science Branch (XD11)
- Joe Sanford, Mechanical and Fluid Sys-

tems Design Branch (EI12)

- Teresa Danne, MSFC Accounting Operations Office (RS20)
- Steve Noneman, Nuclear Systems Office (NP50)

Seven from the Marshall Center will participate in the NASA Fellowship Program for developmental and educational opportunities at select universities. The program's length varies from a week to a year. Those selected are:

- Dan Coughlin, X-37 Project Team (NP30), Stanford Sloan
- Karen McTaggart, Resource Management Office (ET02), University of Michigan Management Development Program
- Angelia Walker, Safety, Reliability and Quality Assurance Policy and Assessment Department (QD40), Harvard Program for Manager Development
- James Reuter, Shuttle Projects Office (MP01), Harvard Senior Managers in Government
- Larry Leopard, Propulsion Components Design and Development Division (ER30), UCLA Creativity and Innovation in the Organization
- Chris Crumbly, Space Transportation



Photo by David Higginbotham, Marshall Center

Mission highlights from Fincke

International Space Station crewmember Mike Fincke visited the Marshall Center Tuesday with highlights of the Expedition 9 mission. Fincke spent six months on the Space Station.

Programs and Projects Office (NP70), Harvard mid-career master in public administration

- Michael Fazah, Nuclear and Advanced Propulsion Branch (ER11), University of North Carolina Executive Development Institute.

Aerocapture

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"The In-Space Propulsion Technology Office is just one of many NASA organizations working to make the Vision for Space Exploration happen. It's an exciting time -- to know we could play a part in paving the way for the future of space exploration," adds Johnson.

The In-Space Office currently is concentrating its efforts in five technology areas: aerocapture, electric propulsion systems, solar sail propulsion, advanced chemical and solar thermal propulsion, and tether technology.

Aerocapture uses a planet's atmosphere as a natural brake to assist in decelerating an incoming spacecraft to accomplish a quick, near "propellantless" orbital capture, or placement of a spacecraft into orbit. System studies done by NASA show aerocapture could be an enabling technology for space travel to and from some planets, including Mars.

"Instead of the traditional approach, utilizing onboard fuel, aerocapture uses a natural resource already at the destination -- the atmosphere -- to insert a spacecraft into its proper orbit," says Bonnie James, technology area manager for Aerocapture Technology. "This significantly reduces the overall mass required and allows much faster trip times. This type of propulsion technology can provide a natural evolution from robotic to human exploration needs."

Another area of focus of the In-Space Office is electric propulsion systems, which use electrical energy from the Sun to ionize and accelerate a propellant to produce thrust. One such technology is ion propulsion, which powered NASA's Deep Space 1 -- that flew by Comet Borrelly in 2001.

"The payoff for ion propulsion is in long-duration missions," says Randy Baggett, technology area manager for Next Generation Electric Propulsion.

"This propulsion technology could reduce trip times, cut costs and allow for an increase in science payload."

Research is also being done on solar sail propulsion. This propellant-less propulsion technology uses photons -- sunlight -- to propel a craft through space. The photons are reflected off giant sails, made of thin, lightweight material, that harness the "pressure" exerted by the photons to provide thrust.

The other technologies so far under development by the Marshall Center office are tether technology -- a propellant-less propulsion system that uses a long cable to raise and maintain the orbits of spacecraft; advanced chemical propulsion, which involves advanced formulations of conventional fuels and new propellants; and solar thermal propulsion, which uses solar energy to heat propellant.

The writer, an ASRI employee, supports the Public Affairs Office.

Obituaries

Felix W. Crunk Jr., 58, of Athens, died Dec. 30. Mr. Crunk was a safety inspector at the Marshall Center under a contract with LB&B Associates. He retired from the U.S. Air Force after 20 years.

Survivors include his wife, Glynda Crunk; two sons, Felix W. Crunk III and Steven Crunk of Athens; two stepchildren, Russell Bodiford and Danielle Mayfield of Athens; and four brothers, Ray Crunk of Meridianville, Roy Crunk of Rogersville, Jesse Stutts of Huntsville, and James Stutts of Decatur.

Paul A. Davis, 79, of Madison, died Nov. 21. Mr. Davis retired from the Marshall Center in 1984 after working as an electronics technician. He served in both the U.S. Army and the Navy.

Survivors include his wife, Beverly Davis; his children, Manuel P. Davis and Vincent L. Davis of Madison, Dani Jo Davis of Union Grove, and Emily L. Davis of Davenport, Iowa.

Dyerl W. Duncan, 68, of Huntsville, died Nov. 18. Mr. Duncan retired from the Marshall Center in 1991 after working as a quality assurance specialist. He served in the U.S. Army.

Survivors include his son, Phillip Duncan of Birmingham; a daughter, Connie Barron of Birmingham; his brothers, Buck Duncan of Huntsville, Bobby Duncan and Bill Duncan of Athens; and his sister, Betty Smith of Athens.

John C. Goodrum, 86, of Huntsville, died Nov. 25. Mr. Goodrum retired from the Marshall Center in 1974 after working as an engineer and director of the Project Logistics Office. He was owner of Four Seasons Travel Agency from 1978 to 1996.

Survivors include his wife, Sarah Bratton Goodrum; a son, John C. Goodrum Jr. of Huntsville; and a daughter, Susan G.

Hayden of Huntsville.

Ivan E. Hirshburg, 87, of Huntsville, died Nov. 25. Mr. Hirshburg retired from the Marshall Center in 1973 after working as an engineer. He was a World War II veteran and received several distinguished service medals, including the Purple Heart and Distinguished Flying Cross.

Survivors include his wife, Maxine Smith Hirshburg; two sons, Edgar A. Hirshburg of Tulsa, Okla., and Dr. Robert I. Hirshburg of Hendersonville, N.C.

Jerry Phillips, 70, of Guntersville, died Nov. 18. Mr. Phillips retired from the Marshall Center in 1988 after working as a computer systems analyst.

Survivors include his daughter, Jerri Lynn Sims of Arab; a son, Michael Phillips of Guntersville; a sister, Betty Chamblee of Rome, Ga.; and a brother, Joe Phillips of Glencoe.

Robert Reese Jr., 80, of Huntsville, died Nov. 29. Mr. Reese retired from the Marshall Center in 1981 after working as an engineering technician.

Survivors include his wife Majorie H. Reese; a daughter, Wanda Carlen of Huntsville; and a brother, Nelson Reese of Montgomery.

William E. Sanders, 86, of Huntsville, died Nov. 30. Mr. Sanders retired from the Marshall Center in 1974 after working as a production controller. He was a World War II veteran who served in both the Army Air Corps and the Marine Air Corps.

Survivors include his wife, Evelyn J. Sanders; his children, Darlene Kerr, Doris Bridges, Linda Crow, Lana Stewart and Kay Matthews, all of Huntsville.

Charles C. Wood, 80, of Huntsville, died Dec. 22. Mr. Wood retired from the Marshall Center in 1981 after working as chief engineer of Space Shuttle Propulsion Systems Integration. He served in the U.S. Navy during World War II. Survivors include his wife, Virginia G. Wood; a son, Charles David Wood of Atlanta; a daughter, Dr. Ellen Wood Lynch of St. Louis, Mo.; and a brother, Jack E. Wood of Birmingham.



Safety awards presented
Marshall Center Director David King, right, presents the second NASA Industrial Safety Performance Award to Mike Weibert, left, Jacobs Sverdrup safety and quality manager, and Randy Lycans, center, deputy general manager of the Jacobs Sverdrup Marshall Center Group. The company received the award for achieving the highest safety performance for an on-site contractor.



Mike Weibert, left, and Lon F. Miller, center, Jacobs Sverdrup managers, receive an award from David King, Marshall Center director, for achieving 3 million work hours without an accident.

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point of our journey is now receding in the distance.

In the course of the past 12 months, NASA has:

- Transformed our entire organization so that we will be “wired for success.”
- Obtained strong congressional backing for our exploration and discovery focus.
- Engaged the international space community, academia, the traditional aerospace industry and other innovative technology firms in planning for Vision implementing missions and activities.
- Received over 17.5 billion hits on our Web site, representing over 150 million users, a clear indication of renewed public interest in space exploration.
- Reoriented scientific research on the International Space Station to maximize the Station’s potential as a vital test-bed for technologies, processes and partnerships that will enable human missions back to the moon and then onward to Mars.



Photo by David Higginbotham/ Marshall Center

Carolyn Griner listens to NASA Administrator Sean O'Keefe Friday via NASA Television during his NASA Update. He discussed NASA's progress in fulfilling the Vision for Space Exploration.

- Reached a number of key milestones in our Return to Flight work and are now preparing for the launch of the STS-114 mission.
- Been honored for the “scientific breakthrough” of the year by the editors of Science Magazine in recognition of the

extraordinary work of our Mars Exploration Rovers, Spirit and Opportunity, and of the team that controls them.

- Demonstrated the potential of scramjet technology for enabling ground to space transportation with the record breaking experimental flights of the X-43A scramjet aircraft.
- Launched the Deep Impact probe toward its Fourth of July rendezvous with the comet Tempel 1, the Messenger mission on its seven-year journey to Mercury, the Aura mission to measure Earth’s atmospheric chemistry, and the Swift mission to study the origin of gamma-ray bursts.

I commend everyone involved in these and other impressive NASA accomplishments for your hard work and dedication.

O'Keefe: A word on the Tsunami relief effort

Our new year began on a sad note with the terrible loss of life caused by the devastating December 26th Sumatra Earthquake and Indian Ocean Tsunami. This catastrophic event has served as a reminder about how much more we need to learn about natural forces on our home planet, and, on another level, about the common bonds that link us human beings in times of tragedy.

This past year members of the NASA Family reached out to our coworkers and their families following the hurricanes that struck Florida and the tragic Jet Propulsion Laboratory vanpool accident. Now we can collectively have a broader impact on this global tragedy. At this time, I encourage you to join with fellow Americans in heeding President Bush’s call to assist the

humanitarian relief effort now underway in southern Asia by making donations to reliable charities already providing help to tsunami victims. A list of reliable charities can be found on the Web site of the USA Freedom Corps at: <http://www.usafreedomcorps.gov>

I’m also proud to report to you that NASA is putting our technology to work in support of federal tsunami recovery and relief efforts. Using satellites and instruments from our Earth Observing System, we are producing data to assist in the ongoing humanitarian efforts. For example, NASA worked to provide MODIS and EO-1 Hyperion sensor data collections and historical data to the U.S. Navy to help them safely bring ships involved in the relief effort into ports damaged by debris and sediments. Additionally, the information provided by our satellites is being

used to investigate the event and document the devastation caused by the tsunami. This research will aid in the future development of tsunami and earthquake predictive models and warning systems.

Finally, as we begin the year, we should be thankful for the outstanding work the men and women in our armed forces are doing throughout the globe to protect our freedoms and lend assistance to this unprecedented humanitarian effort. Currently, within the NASA Family 20 of our colleagues are serving in active duty military units. They are certainly in our thoughts and prayers at this time.

---Sean O'Keefe, NASA Administrator

Announcements

Presales of the Saturn V Rocket auto license tags end Jan. 31

Presales of the Saturn V rocket auto license tags will end Jan. 31. At least 1,000 specialty tags must be ordered before the state will agree to produce them.

Proceeds from the new tag, "First to the Moon and Beyond," will be used to construct a permanent building at the U.S. Space & Rocket Center for the Saturn V rocket. The tag costs \$50 every year above the usual license plate renewal fees. Tags may be ordered online at <https://register.spacecamp.com/tag>.

Volunteers needed for moon buggy race

Volunteers are needed for the 2005 Great Moon buggy Race set for April 8-9 at the U.S. Space & Rocket Center. Volunteers are needed from 8 a.m. to 12:30 p.m. and from noon to 5 p.m. Duties would include judging the obstacle course, keeping scores, reporting and pre-race qualifying. Shirts and lunch will be provided for those who volunteer. Call Julie Clift at 961-7896 for more information or sign up at <http://oscar.msfc.nasa.gov/hs/tgmr2005.nsf/lrf>.

Mentors needed for summer college internship program

Volunteers are needed to serve as mentors to the 2005 Undergraduate Summer Internship Program participants. The program, sponsored each year by the Marshall Center, is May 16 to July 22. Mentors are

needed from all technical directorates. Contact Madeline Hereford at 544-7420 for more information.

Former Dryden Research Center director to speak at AIAA event

Kenneth J. Szalai, former director of the NASA Dryden Flight Research Center, will speak Feb. 11 at an American Institute of Aeronautics and Astronautics/ University of Alabama in Huntsville student chapter event. Szalai, an AIAA fellow, will discuss experimental flight research in the modern era. The free event is from 6:30 – 9 p.m. in the UAH Technology Hall, room S105.

Lunchtime prayer is Tuesday and Thursday at noon

Marshall team members are invited to lunch-time prayer each Tuesday and Thursday from noon to 12:30 p.m. in Bldg. 4200, Room 432. Call Johnnie Wilson at 544-1007 for more information.

Weigh to Win contest kicks off Monday

Marshall's Wellness Center is again sponsoring the Weigh to Win weight-loss contest. Create a team of up to five people and after seven weeks see how much weight the team has lost. A team scores points for each pound lost. All Marshall team members and retirees are eligible to participate. Registration ends Friday. The contest begins Monday and ends March 11. Call the Wellness Center at 544-0252 for more information.

Volunteers needed to mentor SHARP students

The Marshall Center is seeking volunteers to work with students participating in the 2005 NASA Summer High School Apprenticeship Program, or SHARP. The eight-week program gives selected students opportunities to work in science and engineering areas. Researchers and other science and engineering professionals serve as mentors to the students. To volunteer, call Jennifer Simmons at 961-7544.

Chitwood to speak at Marshall Association Luncheon

Charles Chitwood, the Marshall Center's newly appointed deputy director, will speak at the Marshall Association Luncheon on Feb. 3 at 11:15 a.m. in the Marshall Center Activities Building 4316. The luncheon cost is \$9, payable at the door, and includes baked chicken, vegetarian pasta, sweet potato casserole, green beans, rolls, peach cobbler and tea. Call Cindy Upton at 544-5755 for reservations.

Classified Ads

Eight interior doors and six bi-fold doors. 585-0473
 Pugs, AKC, 2F/5M, fawn black mask, dewormed, first shots, ready Dec. 18, \$450. 256-882-2037
 S-10 short bed camper shell, \$125; rare bach Stradivarius trumpet, mint, \$1,200. 851-8085
 Get the Edge w/Tony Robbins, \$75; Formica bathroom counter top, 49"x22", ceramic bowl, faucet, \$80. 552-0998
 2001 Coleman pop-up (electric-lift) camper, 10'x25' foldout, a/c, kitchen, toilet, showers, king-size bed, \$9,000. 931-438-2411
 Sigma 70-300mm Macro lens, \$500. 653-4333
 Horse and tack, best offer. 656-6755 after 5 p.m.
 Decorative cast iron vent-free natural gas heater, 35K BTU output, \$325. 656-2965
 Whitewater kayak, Dagger Super Ego, paddle, spray skirt & helmet, \$450. 880-2990/Mick
 King trumpet w/hard case, silver. 883-2757
 Nintendo GameBoy Advance w/matching worm light, battery pack, AC adapter, carrying case, \$50. 232-1940
 Black & Decker heavy duty lawn edger, LE500, electric, manual included, \$50. 683-2042
 Hotpoint electric dryer, \$30; Fisher Price play kitchen, \$25. 829-0776 after 5 p.m.
 Yamaha Grand piano, 5'3", black, purchased in February, 1999, \$8,500. 931-0671 leave message.
 Waterbed. Queen size, four poster, dark wood, fully baffled mattress w/heater, \$50. 726-2224
 Hay, square bales, Russell Bermuda, \$3.50 per bale. 722-8210/Greenbriar area
 Sony color TV, 46", \$300. 971-1437
 Collection of 1940's records w/jackets, \$10; Brass chandelier, \$25. 837-1774
 K-Tec Electric Grinder grinds all grain types from very fine to coarse, \$90. 882-2369
 American Bulldog, 8 weeks old, black and white, male, parents on premises 851-8668 after 5pm
 Exercise equipment – Sears CardioFit \$60, 355-6648 after 5 pm
 Electric air hockey table. great shape. Only \$75.00 828-0756
 Goya 6-string acoustic guitar, excellent shape with new strings, no case. \$65.00 call 464-7285
 Baby crib with mattress and changing table; natural wood color; \$300 takes all. Call 325.9264
 GE Stove \$100, Stepper Exerciser \$50, Thigh Machine \$40, Sears Cardiofit Ski Exerciser \$100. 772-1870
 Maytag Gas Dryer, \$85. Brother Thermal Fax machine, \$35. 509-7907
 Wedding dress and veil, ivory satin and beading, size 10, \$150. 776-9165.
 Martin D-1 acoustic guitar, spruce top, mahogany back/sides, \$550; Seagull S-6 guitar, \$275. 430-0421
 Kodak easyshare DX6340 digital camera (new), 64MB memory card, charger/batteries, case. \$200. 256-783-4850
 Washer and Dryer, Sears Kenmore. White. About 15 years old. Both work. Dryer recently overhauled. \$225 for pair. 325-5646
 Office desk, 24x54, walnut laminate top, chrome legs, almond steel frame/drawers, \$49, 971-0571.
 White Metal Futon Bunk Beds (2), mattress available. \$150 each. 431-1556
 Craftsman 10" Radial Arm Saw. New table top. Dust collector attachment, \$200. 353-4922

Volvo steel rim and Michelin Tire P195160R15. 881-6040
 Pennsylvania House, Cherry, Entertainment Center, up to 30" TV, \$750. 931-427-2059
 Three upholstered living room chairs. Two are antique, \$185. 256-837-0786
 Oak Entertainment Center \$350.00 or best offer. Call 776-4458 after 5:30pm
 Klipsch-design corner horn subwoofers, pair, 15" drivers, blonde wood finish. Best offer.
 Pearl snare drum with case, sticks, pad, stand, key, lesson books; \$150. 882-6449
 Solid oak table w/ leaf and 4 chairs, \$150. Entertainment center, \$30. 489-8499.
 L shaped executive desk and matching 2 drawer lateral file cost \$3000.00 will take \$1000.00. Call 256-426-9557 anytime
 Couch and loveseat, \$150 for the set, Navy blue. Contact 883-6534, buyer pickup.
 New, red satin formal halter dress with shawl, size 10, \$40. 828-3887
 Ashley Furniture (red, white, yellow) powercoated bunk bed w/sofa & desk. \$400. 883-1667
 14 karat eng ring, round brilliant cut, .97 carat, I1 clarity, appraised \$3500. Asking \$1500. Call 5-1479
 Andirons with brass eagle finials for fireplace, \$115. 882-1097
 Diamond engagement ring, round cut, .43 carat, 14k gold, \$700. Matching jacket \$250. 961-1479.
 Nordic Track Treadmill, EXP1000X, Space Save, Ifit Compatible \$550, Tony Little Gazelle Freestyle Elite \$250. 883-1693
 Longaberger Classic Blue Woven and Christmas Holly pottery (numerous pieces). Half current list price. 468-6016
 50 gal saltwater aquarium, 3 fish, liverock, ives and, metalhalide lights, stand/hood, supplies, \$620 call 468-7857.
 Diamond solitaire ring, .25 carat, \$125; diamond cluster heart-shaped ring, \$125.00. 683-1279
 2 plots Huntsville Memory Gardens, \$1200 each. Call 256-881-4067
 Truck bed extender- New, Paid \$250 Sell \$100. 837-1774
 Oak computer desk with hutch, best offer. 772-7262
 Formica bathroom counter top w/deep ceramic bowl & faucet, \$80. 552-0998
 2001 Coleman pop-up electric lift camper, 10'x25', foldout, a/c, kitchen, toilet, showers, king-size beds, \$9,000. 931-438-2411
 Camper shell for S-10 short bed, \$125; Rare Bach Stradivarius trumpet, mint, \$1,200. 851-8085
 K-Tec electric grinder, grinds all grain types, very fine to coarse, \$90. 882-2369/Krebsbach
 Diamond engagement ring, round, .97 carat, gold, \$1,500. 961-1479
 Rickenbacker 350 12-string electric guitar, Fireglow finish, triple toasters w/case/papers/etc., \$1,550. 303-3702/Decatur
 Jeep Wrangler TJ hidden hitch, fits 97-up, 2x2 receiver, \$50. 353-9891
 GE side-by-side refrigerator, 21.8 cu. ft., white, crushed ice/water, 2 yrs. old, \$500. 464-7847
 Dog ramp, new, \$50. 256-653-1611
 Breezy 510 wheel chair, never used, \$400. 722-8086 after 4 p.m.
 AKC German Shepherd puppies, Champion line, 3-mos., black & tan, vet checked, shots, \$400. 256-694-5912
 Compaq CV715 17" monitor w/keyboard, \$20. 536-0655
 Precor 618e electronic rowing machine, \$50; weight bench, \$35; roof-top car carrier, \$35. 536-6295
 1990 Bayliner 2050 Bowrider, 200HP Mercruiser w/trailer & canvas, \$4,500. 256-497-3518
 Black & Decker home café one cup brewing system, new in

unopened box, \$40. 256-777-8229
 Hotpoint electric stove, \$50. 461-9404
 Pennsylvania House entertainment center, Cherry, holds up to 30" TV, \$750. 931-427-2059
 Set of Ping 13 irons, Blue Dot, 2 thru U wedge (10 clubs), \$365. 256-348-2298
 Double reclining Lane Love Seat, green leather, \$225; Dorm size refrigerator, \$50. 256-233-8651/lv. msg.
 Pro-Form 525 SE motorized treadmill; Health Rider; DP Gypmac 1500 weight system. 256-586-6450
 Computer desk, L-shaped, shelves, drawers, \$150; Craftsman workbench, lighted/powerd back panel, new in box, \$300. 776-9165
 King-size bed, double mirror dresser, chest, night stands, full-length floor mirror, \$750. 922-9311
 Rotary cutter, 6', 3-point hitch, Sidewinder GM72, new blades, \$250. 256-772-9768
 Office desk, 24x54, Walnut laminate top, chrome legs, almond colored steel drawers/frame, \$49. 971-0571

Baby crib and changing table, natural wood color, \$300. 325-9264
 Two Futon mattresses, X-long twin, together make king, all cotton, new, \$225. 520-3874
 1993 Shasta 21' pull behind camper w/awning, sleeps 5, \$5,000. 256-694-0501
 Moving sale: Cherry dinette, 6 chairs, hutch; 52" TV, two sofas, 9-piece wicker set. 722-0286
 Commercial grade Delfield refrigerator, stainless, single door, \$400; Hobart garbage disposal, \$100. 534-3760
 Three upholstered living room chairs, two are antique, \$185. 256-837-0786
 Electric air hockey table, \$75. 828-0756
 2004 Komfort Cruiser "Big Kid" booster seat, used <1 hr., \$95; Engagement ring, 1/2 carat, \$900. 714-0481/Stephanie
 Several Targus leather laptop bags, padded, many pockets, shoulder strap, \$8 each. 837-8490
 Protec Jr. street pad set, knee, elbow and wrist, ages 6-9, only worn twice, \$25. 533-5042

Vehicles

2000 Honda Civic VP, 86K highway miles, CD, PDL, remote entry, new tires, \$8,500. 256-895-0577
 1986 Ford Bronco, 4x4, full size, currently not running, best offer. 533-9683
 1989 VW Cabriolet convertible, red w/black top. 256-883-1953
 1996 Honda XR100 dirt bike, one-owner. 256-655-6293
 2003 Honda Odyssey EX, leather interior, redrock pearl exterior, 52.3K miles, \$21,500. 256-464-8073
 2002 Chevy Z 71 Tahoe, black, 54K miles, loaded. 256-302-1750
 2002 Ford Mustang GT, white, 32K miles, V8/5-speed, MACH stereo w/CD changer, leather, \$15,500. 256-340-0568
 2001 Ford Explorer, Sport. 233-6197
 1999 Chevrolet Tahoe LS, 2WD, pewter, 68K miles, dual a/c, one-owner, \$10,500. 656-9527
 1986 Cadillac Deville touring sedan, 192K miles. 533-6056
 1991 Mazda B2600i KingCab pickup, blue, 128K miles, \$2,500. 256-883-1003
 1994 Lexus ES300, emerald green/tan leather, sunroof, new brakes, new belts, garaged, extras, \$5,000. 520-3083
 2000 Ford Explorer Sport, V6, 5-speed, 2WD, am/fm/cassette/CD, 68K miles, one-owner, \$7,000. 256-828-9798
 Kubota L2250 tractor, 2WD, 20HP diesel, \$5,900. 256-353-7670 after 5 p.m.
 1999 Honda Accord LX, 120K miles, new timing belt, custom paint, many extras, \$8,000. 256-759-3991

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